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THE
ONTARIO WATER RESOURCES
COMMISSION

WATER POLLUTION SURVEY

of the

VILLAGE OF CREEMORE

COUNTY OF SIMCOE

1967

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Report on a water pollution
survey of the village of
Creemore, county of Simcoe.
80867

Report

on a

Water Pollution Survey

of the

VILLAGE OF CREEMORE

County of Simcoe

October 1967

District Engineers Branch

The Division of Sanitary Engineering

INDEX

<u>SECTION</u>	<u>PAGE NO.</u>
INTRODUCTION	1
I GENERAL	1
(1) Location	1
(2) Topography	1
(3) Drainage	2
II WATER USES	2
(1) Municipal Water Works	2
(2) Recreational	3
III WATER POLLUTION	3
(1) Sewage Disposal	3
(2) Municipal Storm Sewers	4
(3) Creemore Creamery Private Sewer	4
IV REFUSE DISPOSAL	5
V GENERAL DISCUSSION OF LABORATORY RESULTS	5
SUMMARY	6
RECOMMENDATION	7
APPENDIX	
TABLE	
MAP	

R E P O R T

THE ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

The purpose of this survey was to assess the sanitary conditions of the watercourses and drainage courses within the Village of Creemore.

Surveys of this nature are done routinely throughout the Province of Ontario. Sources of existing and potential water pollution are noted and recommendations regarding their abatement are made to the parties concerned. Where pollution problems are of a municipal nature, the OWRC advises municipalities concerning the need for sewage treatment and is able to construct, finance, and operate water and sewage works for Ontario municipalities upon request.

On July 31, 1967 surface-water samples were collected from the Mad River and drainage courses within the community.

I GENERAL

(1) Location

Creemore, a village with a population of 807 (1967 Municipal Directory), is located 18 miles southeast of the Town of Collingwood in the Township of Nottawasaga.

(2) Topography

The municipality is located within a glacial spillway which is bordered to the north and south by ridges of the Niagara Escarpment. Overburden consists mainly of sandy-clay soil with underlying

gravel formations.

(3) Drainage

Creemore is situated on the watershed of the Nottawasaga River. The Mad River, a tributary of the Nottawasaga River, flows along the southern edge of the village.

Storm drainage within the village, with the exception of Mill Street, depends either upon drainage ditches or the absorption qualities of the soil. Mill Street, the main street of Creemore, is served by two sections of storm sewers. The section serving the portion of the street between Nelson and Francis streets discharges into an open ditch on the east side of Mill Street north of the former railway tracks. The portion of the sewer serving Mill Street south of the former railway tracks discharges into the Mad River opposite the foot of Mill Street.

II WATER USES

(1) Municipal Water Works

The water works system serving the village is fed from springs located on a farm 3 miles southwest of the village. Water is collected in a housed concrete catch basin and flows by gravity to a reservoir of 100,000 gallons capacity. A 1,500-gph pump is provided to pump water from a standby spring to the collection system. The water is chlorinated prior to flowing into the reservoir.

For all practical purposes, 100 per cent of the village is served by the municipal system. The following service connections are provided:

Residential	-	291
Schools, Clubs	-	5
Commercial & Industrial	-	<u>46</u>
TOTAL		342

It was noted that of the 46 commercial and industrial water users there were no laundromats or car washes and the only user of large quantities of water was the creamery.

During the period from January 19 to March 17, 1966, the water meter was out of order. Based on the remaining months of the year, the average daily pumpage was 64,282 gallons which corresponds to approximately 80 gallons per capita per day.

Chemically, the water is quite hard and low in iron content. Bacteriologically, the untreated water has generally been found to contain coliform organisms whereas the treated water has been found to be satisfactory.

(2) Recreational

The Mad River, upstream of the village, is reportedly used for swimming purposes. The water samples taken at the Caroline Street bridge reflect the condition of the water upstream.

III WATER POLLUTION

(1) Sewage Disposal

The municipality lacks sanitary sewers and the domestic

sewage is disposed of by means of septic tank systems and seepage pits.

Due to the gravelly soil conditions, there has been little if any problem to date as a result of the operation of seepage pits. However, the use of seepage pits for the disposal of sewage is not approved by the Simcoe County Health Unit and they should be replaced with septic tank systems whenever and wherever possible.

(2) Municipal Storm Sewers

Samples were taken from the outfalls of the north and south portions of the storm sewer (points designated NM-45.8W and CR-1W). Neither the bacteriological nor chemical results of the analyses of these samples indicate the presence of domestic wastes in the discharge.

(3) Creemore Creamery Private Sewer

A private sewer serving the Creemore Creamery runs along the east side of Mill Street and discharges at the foot of Mill Street near the outfall of the south portion of the municipal storm sewer. Floor and equipment washings from the Creamery are conveyed to the Mad River via this sewer.

Sample point NM-45.8I corresponds to the outfall of this sewer. The results of the analyses of samples collected at this point reveal that waste materials with high organic and bacterial concentrations were being discharged to the watercourse.

On August 3, 1967 an industrial wastes survey of the Creemore Creamery was conducted by the Division of Industrial Wastes of the Ontario Water Resources Commission. As a result of this investigation, the creamery has been asked to investigate the various alternative means of providing a solution to the problem.

IV REFUSE DISPOSAL

The village's refuse disposal site is located in the eastern section of the municipality off Edward Street East. Garbage is dumped into excavations approximately 4 feet deep, 10 feet wide and 300 feet long, and then covered with soil.

The site is sufficiently isolated from any watercourse to prevent pollution. The nearest stream is the Mad River which is approximately 1,000 yards south of the dump site.

V GENERAL DISCUSSION OF LABORATORY RESULTS

The results of the bacteriological examinations and chemical analyses of the water samples collected during this survey are shown in Table 1.

As a result of the water pollution survey of the Village of Creemore it was revealed that the main source of pollution of the Mad River was the discharge from the Creemore Creamery. No evidence could be found of domestic sewage entering the municipal storm sewers or drainage ditches.

The condition of the Mad River upstream from the village, as shown by the results of the analyses of a sample collected at

point NM-46.3, was satisfactory. The results of the analyses of the sample collected at point NM-45.8, which is downstream from the storm and private sewer outfalls, indicate that the water quality in this vicinity did not satisfy the OWRC surface-water objectives. As was mentioned previously, this deterioration in water quality was primarily the result of the waste discharge from the Creemore Creamery.

The analyses of the sample taken from point NM-45.5, which is downstream from the village, showed that the river had purified itself to the extent that it was able to once again satisfy the OWRC objectives for surface waters.

This purification is primarily the result of the diluting effect which the river had upon the waste discharges. At the time of this survey, the river was experiencing high flows whereas, the creamery discharge was minimal. Had the volume of creamery discharge been higher and/or the river flow lower, the polluting effect would have been more pronounced and would have persisted for longer distances downstream.

SUMMARY

This is a report of a water pollution survey of the Village of Creemore, the purpose of which was to locate existing and potential sources of water pollution within the municipality. The survey was made on July 31, 1967 and the report is based on the results of chemical analyses and bacteriological examinations of water samples collected on this date.

The village has a municipal water supply which services virtually 100 per cent of the community. There are no municipal sanitary sewers and sewage is disposed of by means of septic tanks and seepage pits. Two sections of storm sewers serve Mill Street but the rest of the village depends on drainage ditches and the absorptive quality of the soil.

The Mad River, a tributary of the Nottawasaga River, flows along the southern edge of the village. Pollution of this watercourse is occurring primarily as a result of the discharge from the private sewer serving Creemore Creamery. The Division of Industrial Wastes has completed an investigation of this industry and has requested that the Creemore Creamery take action to remedy this situation. No other sources of pollution were noted.

RECOMMENDATION

The Creemore Creamery should continue its efforts to arrive at a satisfactory waste treatment method.

/elc

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APPENDIX

EXPLANATION AND SIGNIFICANCE OF LABORATORY ANALYSES

A Bacteriological Examination

Bacteriological examinations were performed on samples collected from the Mad River and connecting drainage courses. The coliform counts were obtained by the Membrane Filter Technique. Coliform bacteria are normal inhabitants of the intestines of man and other warm blooded animals. They are always present in sewage and are generally minimal in other pollutants. The results of the examinations are reported as M.F. coliform count per 100 ml.

The Commission's objective for surface waters in Ontario is a coliform count of not greater than 2,400 organisms per 100 ml.

B Chemical Analysis

The chemical analysis of water samples included determinations for biochemical oxygen demand and total, suspended and dissolved solids.

(1) Biochemical Oxygen Demand (BOD)

Biochemical oxygen demand is an indication of the amount of oxygen required for stabilization of decomposable organic matter present in sewage, polluted waters or industrial wastes. The test requires 5 days to complete under the controlled incubation temperature of 20°C. The results are reported in parts per million (ppm).

The Commission's water quality objectives are 4 ppm of 5-day BOD for surface waters and 15 ppm of 5-day BOD for storm sewer,

water pollution control plant and industrial waste discharges.

(2) Solids

Tests were performed to determine the total, suspended and dissolved solids in the water samples. The concentration of suspended solids expressed in parts per million (ppm) is generally the most significant of the solids analyses pertaining to stream water and outfall discharge qualities.

The OWRC's objective for discharge is a suspended solids concentration of not greater than 15 ppm.

VILLAGE OF CREEMORE
WATER POLLUTION SURVEY

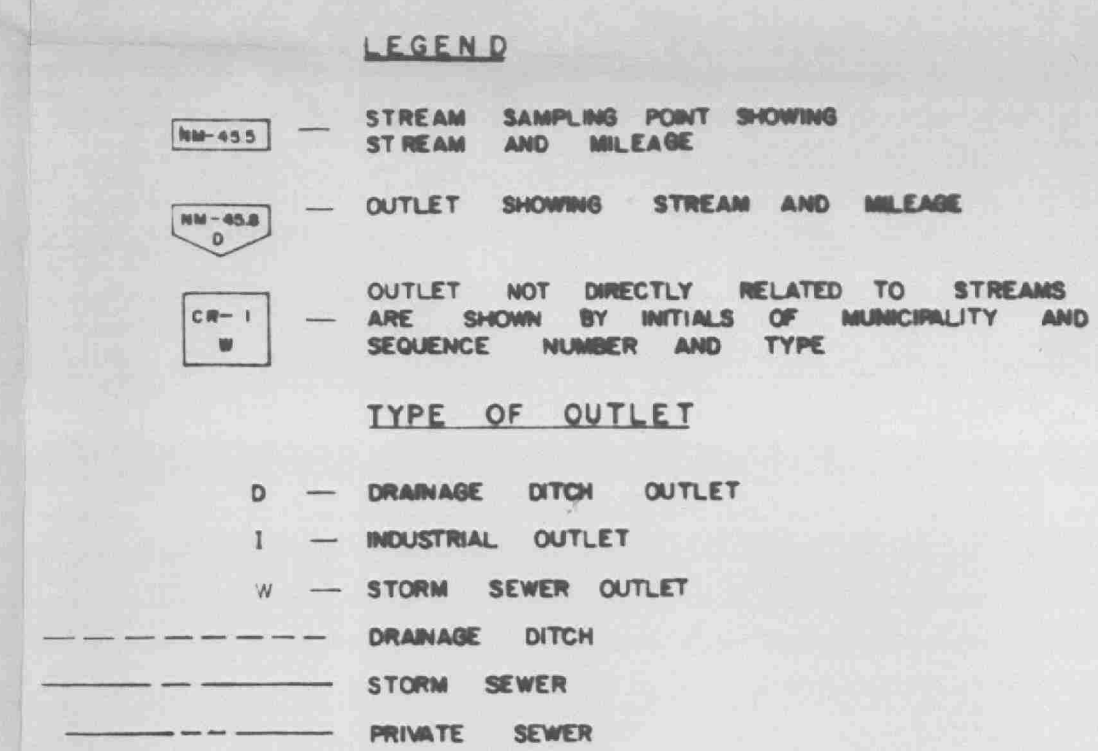
SAMPLE RESULTS

TABLE I

<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	<u>5-Day BOD (ppm)</u>	<u>Total (ppm)</u>	<u>Solids Susp. (ppm)</u>	<u>Diss. (ppm)</u>	<u>M.F. Coliform Count per 100 ML</u>
NM-46.3	Mad River at Caroline Street.	Jul.31/67	0.7	330	8	322	264
NM-45.9	Mad River at Mill Street.	Jul.31/67	0.9	338	11	327	232
NM-45.9D	Drainage course discharging into Mad River off Edward St.	Jul.31/67	0.7	336	8	328	1,600
NM-45.8	Mad River at Caroline Street.	Jul.31/67	0.5	320	13	307	2,900
NM-45.8D	Junction of storm and private sewer.	Jul.31/67	7.8	630	61	569	220,000
NM-45.8I	Discharge from Creamery sewer.	Jul.31/67	210	834	248	586	16,000,000
NM-45.8W	Storm sewer outfall south of George Street.	Jul.31/67	2.8	632	16	616	9,600
CR-1W	Storm sewer outfall in R.R. yard.	Jul.31/67	1.3	416	5	411	4,100

TABLE I (CONTD)

<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	<u>5-Day BOD (ppm)</u>	<u>Total (ppm)</u>	<u>Solids Susp. (ppm)</u>	<u>Diss. (ppm)</u>	<u>M.F. Coliform Count per 100 ML</u>
NM-45.5	Mad River opposite Mary Street downstream from village.	Jul.31/67	0.6	348	9	339	440



S I D E R R O A D B E T W E E N L O T S 6 & 7

SCALE: 4 CHAINS TO 1 INCH	
DRAWN BY: O.F.	DATE: NOV. 1, 1962
CHECKED BY: S.H.	DRAWING NO: 62-105 A